

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:  
ARAKI et al.

Application No.: 10/594,570

Confirmation No.: 6589

Filed: September 27, 2006

Art Unit: 1624

For: DIFLUOROMETHANESULFONYL ANILIDE  
DERIVATIVES USEFUL AS HERBICIDES

Examiner: BALASUBRAMANIAN,  
VENKATARAMAN

DECLARATION

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

I, Shinichi Shirakura / Leader Field Evaluation Herbicides, R&D division BCS

K.K., state that I reside at 5-14-1-303, Joto, Oyama-shi, Tochigi, Japan; I am a citizen of the Japan; that I am familiar with the subject matter and the prosecution of the instant application Serial No. 10/594,570 filed September 27, 2006, entitled "Difluoromethanesulfonyl anilide derivatives useful as herbicides"; that I consider myself qualified by my education, knowledge and experience in herbicide biology, to make this Declaration; and that I have made the following observations:

1. The Instantly claimed invention is directed to novel difluoromethanesulfonamide derivatives, to process for their preparation and to their use as herbicides.

2. The task was - among other things - the development of a new herbicide, that can control resistant weeds, for example SU resistant weeds (sulfonylurea resistant weeds), and other annual and perennial weeds at the same time with a single ingredient .

3. The following tests of the compounds were carried out under my supervision and direction. The tests were conducted in 2004 in Yuki Research Center / Japan using the following methodology:

Preparation of the formulation of the test compounds:-

Carrier : DMF 5 parts by weight

Emulsifier : Benzyloxy polyglycol ether 1 part by weight

A formulation of an active compound is obtained as an emulsifiable concentrate by mixing 1 part by weight of active compound with the above-mentioned amount of the carrier and emulsifier. The required amount of the ensuing formulation is diluted in water before treatment.

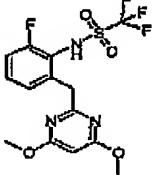
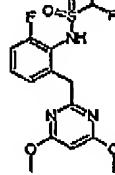
Seeds of the test plants were sown in 500cm<sup>2</sup> pot filled with paddy field soil. Then water was poured to a depth of 2-3 cm and the pot held in a greenhouse under good growing conditions for the plants. 5 to 13 days after sowing plants of all test species had emerged and a prescribed amount of the test compounds (prepared as described above) was added to the water surface. After the treatment the water depth of 3cm was maintained. The herbicidal effects were assessed approximately 3 weeks after treatment. The herbicidal efficacy was rated 100% in case of complete kill of all plants in the pot and as 0% in the case of no herbicidal effects compared with untreated control plants. Example 6 – Table 5: dependency of crystal size accessible by intensive bead milling on the water content.

## 4. Test results:

## Abbreviations used:

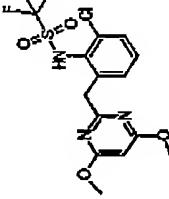
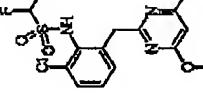
CYPSE = *Cyperus serotinus*  
 ECHSS = *Echinochloa* species  
 MOOVP = *Monochoria vaginalis*  
 SAGPY = *Sagittaria pygmaea*  
 R-SCPSS = *Scirpus juncoides* (sulfonylurea resistant = SU-resistant)  
 R-BBBBBB = Broad leaved weed mix (SU-resistant) - esp *Lindernia procumbens*

Table 1

Structure	Substance	Dosage(g/ha)	CYPSE	MOOVP	R-BBBBBB
	<i>Prior Art:</i> <i>Gates et al. -</i> <i>Compound A9</i>	125	80	100	70
		60	40	100	70
		30	30	90	60
	<i>Invention:</i> <i>Compound</i> <i>No. 9</i>	125	90	100	90
		60	80	100	90
		30	60	100	90

The test results show much stronger activity of Compound No. 9 of the instant Invention against *Cyperus serotinus* and sulfonyl-urea resistant broad-leaved weeds than the compound of the prior art.

Table 2

Structure	Substance	Dosage(g/ha)	% weed control			
			SAGPY	M00VP	ECHS	R-SCPsS
	Prior Art:	125	80	30	90	90
	Gates et al. -	60	50	30	90	80
	Compound A7	30	30	20	70	70
	Invention:	125	90	50	100	90
	Compound	60	90	40	100	90
	No. 11	30	90	30	100	90

The test results show stronger activity of Compound No. 11 of the instant invention against a range of important rice weeds (including sulfonylurea resistant biotypes) than the compound of the prior art.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing there from.

Signed: Shinichi Shirakura

Name: Shinichi Shirakura

Leader, Field evaluation herbicides,  
R&D division, BCS K.K.

Date: 2008/2/18